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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,485	06/05/2006	Peter Carmeliet	BJS-4465-10	7876
23117 7590 09/22/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
POPA, ILEANA				
ART UNIT		PAPER NUMBER		
1633				
MAIL DATE		DELIVERY MODE		
09/22/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,485

Applicant(s)

CARMELIET, PETER

Examiner

ILEANA POPA

Art Unit

1633

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/13/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 06/13/2008

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in the prior Office action.
2. Claim 2 has been cancelled. Claims 1 and 3-6 have been amended.
Claims 1 and 3-6 are pending and under examination.

Response to Arguments

Specification

3. The objection to the specification is withdrawn in response to Applicant's amendments filed on 06/13/2008.

Claim Rejections - 35 USC § 112, second paragraph

4. The rejection of claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite, is withdrawn in response to Applicant's amendment to the claim filed on 06/13/2008.

Claim Rejections - 35 USC § 102

5. Upon further consideration, the rejection of claim 1 under 35 U.S.C. 102(b) as being anticipated by Beck et al. (Mechanism of Development, 1999, 88: 221-227), as evidenced by Bartel et al. (Anat Embryol, 2000, 202: 55-65) is withdrawn.

It is noted that the claim recites that the transgene is specifically expressed in the lymphatic vessels. It is also noted that the instant specification defines "specifically expressed" as predominantly expressed in the lymphatic vessels (p. 7, lines 12-15). Bartel et al. teach a GFP transgene under the control of gut specific promoters, and therefore, the transgene is predominantly expressed in the gut and not in the lymphatic vessels. For these reasons, it is considered that Bartel et al. do not anticipate claim 1.

Claim Rejections - 35 USC § 103

6. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al., in view of both Witte et al. (Microscopy Research and Technique, 2001, 55: 122-145) and Bartel et al. for the reasons of record set forth in the non-final Office action of 03/14/2008. Applicant's arguments filed 06/13/2008 have been fully considered but they are not persuasive.

Applicant traversed the instant rejection on the grounds that, at the time of filing of the present application, it was not clear or reasonably predictable that *Xenopus* tadpoles possessed a functional lymphatic system which could be visualized and used in functional genomic studies. Applicant points out that Bartel et al. state on page 65, that "The presence of lymphatic vessels...may not be taken as an indication of an open communication between blood and lymphatic vessel system" which is a key function of a lymph vascular system (see Witte, abstract, lines 1-2). Applicant argues that one of ordinary skill in the art would also appreciate from the teachings of Riviere et al. (Proceedings of the society for Experimental Biology and Medicine, 1973, 143 (2): 320-

322) and Plytycz et al. (Developmental and Comparative Immunology, 1982, 6(4):781-784 - copy of STN Title "Tadpoles of *Rana temporaria* do not possess the lymph gland" attached) that tadpoles may not have a lymphatic vessel system. Hence, Applicant argues, a person of ordinary skill in the art would not have reasonably predicted at the time of the present invention that tadpoles could have been used as functional genomics tools to study lymphatic vessel systems as it was unknown, for example, if tadpoles actually possessed a lymphatic vessel system. Therefore, Applicant requests the withdrawal of the rejection.

Applicant's arguments are acknowledged, however, the rejection is maintained for the following reasons:

It is noted that the teachings of both Riviere et al. and Plytycz et al. refer to the lymph gland which is a lymphomyeloid structure which is not the same as the lymphatic vessels; the lymph gland is similar to the thymus and spleen and it is one of the tadpole immune system organs. Both references are silent with respect to the lymphatic vessels. Bartel et al. clearly teach the existence of lymphatic vessels in *Xenopus* tadpoles. Bartel et al. only teach that the presence of lymphatic vessels as identified by their technique (i.e., microvascular corrosion casts or VCCs) may not be taken as an indication of an open communication between blood and lymphatic vessel system because this is an artifact of the technique. In support for this assertion, Bartel et al. cite Aharinejad et al. (Microsc. Res. Tech., 1993, 26: 473-488) as teachings the same. It is noted that Aharinejad et al. reports similar findings when using VCCs in rats, i.e., extravasation of the resin in the surrounding tissues, including lymphatics (Abstract).

Does this mean that rats do not have functional lymphatic vessels? Of course not.

Based on the teachings in the art as a whole, one of skill in the art would not conclude that the tadpole lymphatic system is not functionally communicating with the blood vessels. One of skill in the art would have realized that, since lymphatic vessels do exist in tadpoles, they must be functional. It is also noted that Witte et al. teach that the tadpoles have a lymph heart which is in communication with the blood vessels (p. 122, column 1). Therefore, one of skill in the art would know that there is an open communication between the blood and the lymphatic system via the lymph heart and that the lymphatic vessels are functional in tadpoles. One of skill in the art would have reasonably predicted that tadpoles could be used as functional genomics tools to study lymphatic vessel systems. For these reasons, the rejection is maintained.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aharinejad et al. (*Microsc. Res. Tech.*, 1993, 26: 473-488) was cited in response to Applicant's argument that the teachings of Bartel et al. indicate that the tadpole lymphatic vessels are not functional. Specifically, the reference provides evidence that the leakage of resin from the post-capillary venules to the lymphatic vessels is a technique artefact and not an indication that the tadpole lymphatic vessels are not functional.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ILEANA POPA whose telephone number is (571)272-5546. The examiner can normally be reached on 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach can be reached on 571-272-0739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ileana Popa, PhD

/Joseph T. Weitach/

Supervisory Patent Examiner, Art Unit 1633